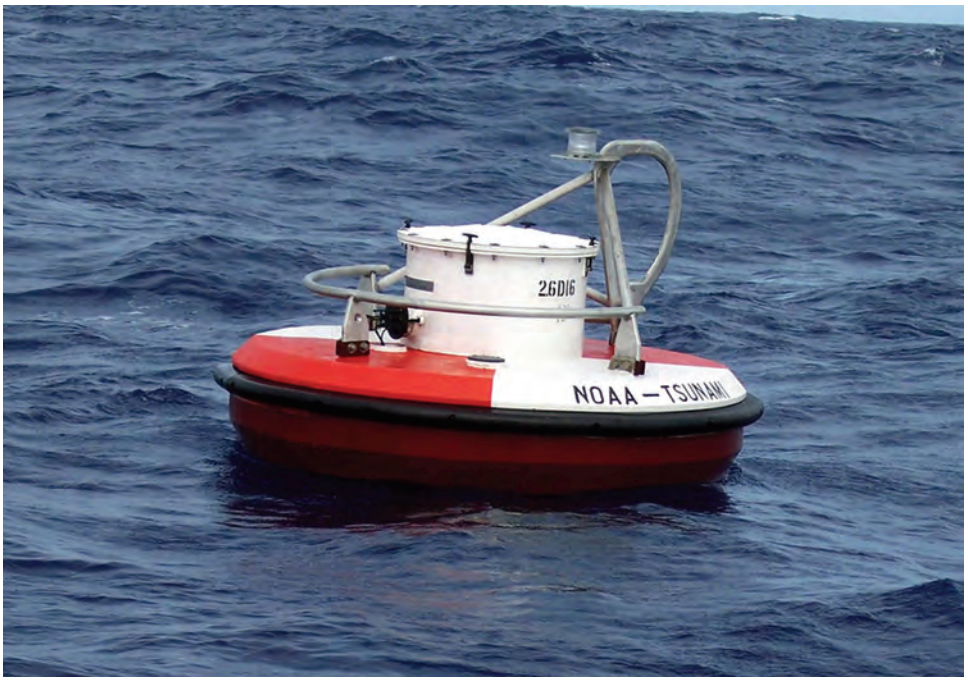
CHAPTER 1 | 2008 NOAA ACCOMPLISHMENTS AND PERFORMANCE RESULTS

NOAA divers work to free an endangered monk seal that is entangled in marine debris; fishing nets that have been lost or discarded

Credit: Raymond Boland



Deep Ocean and Assessment Reporting (DART) buoy

NOAA COMPLETES THE U.S. TSUNAMI DETECTION NETWORK

In response to the December 2004 Indian Ocean Tsunami, NOAA has placed Deep-ocean Assessment and Reporting of Tsunami (DART II) stations at sites in regions with a history of generating destructive tsunamis to ensure early detection of tsunamis and to acquire data critical to real-time forecasts. In March 2008, NOAA deployed the final two tsunami detection buoys in the South Pacific, completing the U.S. tsunami buoy detection network in support of the U.S. tsunami warning system. The experimental array in 2001 was expanded to a full operational network of 39 stations. DART station 52406 represented the 39th and final successful establishment of the planned U.S. DART stations to strengthen the U.S. Tsunami Warning System - meeting full operational capability. Station 32412 (SE Pacific Ocean) completed the process of filling the gap in coverage for seismic events occurring along the west coast of South America. NOAA's DART Network constitutes a critical element of the NOAA Tsunami Program. The Tsunami Program is part of a cooperative effort to save lives and protect property through hazard assessment, warning guidance, mitigation, research capabilities, and international coordination.

Devastation from the Southeastern US Tornado in 2008

NOAA PROVIDES IMPROVED TORNADO LEAD-TIME FOR THE SUPER TUESDAY TORNADO OUTBREAKS (FEBRUARY 5-6, 2008)

In early February 2008 numerous tornados swept across the Southeast United States. These tornado events were anticipated by NWS forecasters several days in advance. NOAA's Storm Prediction Center (SPC) began focusing on the possible affected areas six days prior to the event. The SPC continued emphasizing, refining, and enhancing the threat through the event, ultimately issuing a high risk warning for a large portion of a possible impacted area. The initial lead time allowed the Weather Forecast Office (WFO) to gradually ramp up for severe weather operations and tailor their Hazardous Weather Outlooks (HWO) to include the risk of severe weather and tornadoes as much as four days in advance. Each WFO was in contact with emergency mangers and media the morning of the event. All tornado fatalities occurred within the boundaries of Tornado Watches and were preceded by Tornado Warnings. The average SPC Tornado Watch lead time for the first tornado within the watch was 2 hours. The national average lead time for Tornado Warnings for 2007 was 13 minutes; in contrast, the preliminary average lead time for all verified Tornado Warnings from the WFOs evaluated during this event was 18 minutes, with a 17 minute preliminary average lead time for those warnings which covered deadly tornadoes

Flood waters during the historic 2008 Midwestern US flooding

EARLY WARNINGS PROVIDED FOR HISTORIC 2008 MIDWESTERN FLOODING

Heavy rains triggered widespread flash flooding in Missouri and Iowa in June 2008. NOAA was able to provide early warnings for the flash floods based on the pre-existing conditions of wet soils and unusually heavy winter snows. The March 20th spring outlook by NOAA's Advanced Hydrologic Prediction Service (AHPS) stated that "Major floods striking America's heartland this week offer a preview of the spring seasonal outlook. We expect rains and melting snow to bring more flooding this spring and Americans should be on high alert to flood conditions above-normal flood potential is evident in much of the Mississippi River basin, the Ohio River basin and the lower Missouri River basin…"

The Midwestern Regional Climate Center found that 286 National Weather Service Cooperative Observer Network stations reported precipitation totals for the first half of 2008 that ranked within their top five records for the January – June period. As part of a NOAA research effort to explain climate variations and to improve predictions, climate model experiments have been completed where the actual observed global sea surface temperatures were used to drive the four different simulation models to access precipitation patterns. As a result of these climate model experiments, National Weather Service (NWS) was able to create simulations of global ocean conditions and sea surface temperatures to accurately predict early warnings and mandatory evacuations for wet conditions in the Upper Midwest states.

Western Fire Event

NOAA ISSUES GIS-COMPATIBLE PRODUCTS FOR DAY 4-8 CONVECTIVE OUTLOOKS AND DAY 3-8 FIRE WEATHER OUTLOOKS

The areal outline product for the Storm Prediction Center (SPC) Day 3 - 8 Fire Weather Outlook became official on May 20, 2008 in a Geographic Information Systems (GIS) compatible format. This tool allows forecasters and the public to view, understand, question, and interpret geographic data in order to make better weather sensitive decisions.

The product gives latitude-longitude couplets that define each of the areas in the associated outlook. These areal outlines in the new products depict the following areas: DTSM – Dry Thunderstorm Area, CRIT – Critical Fire Weather Area, EXTM – Extremely Critical Fire Weather Area. This product, which is a repackaging of existing fire weather areal outlook information in a more readable format, was specifically requested by several fire weather users.

NOAA Weather Radio - All Hazards

NOAA DISTRIBUTES 182,000 NOAA WEATHER RADIOS

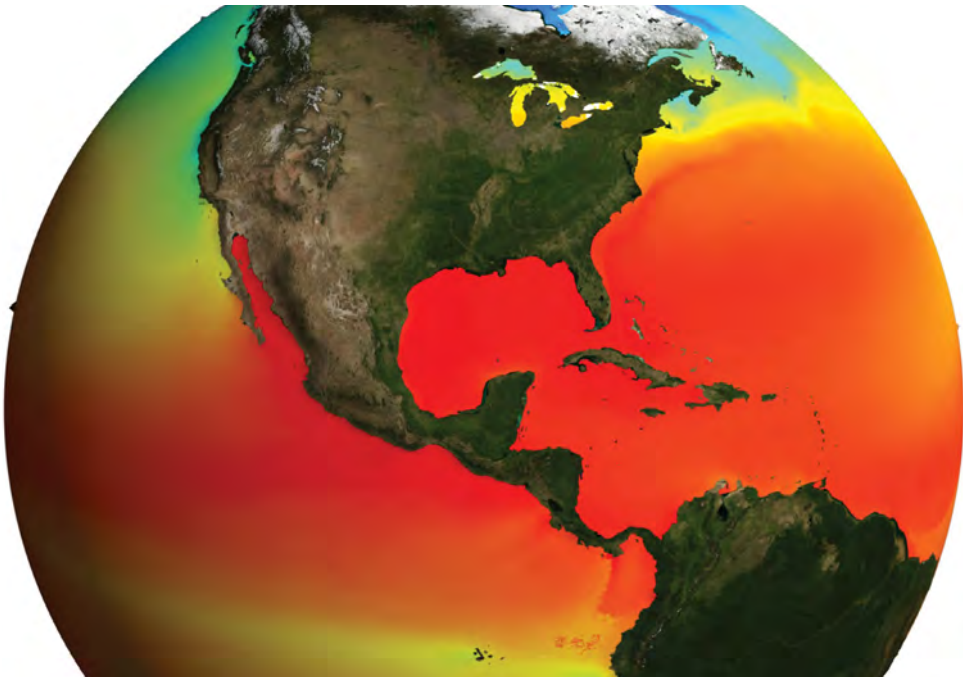
In FY 2008, NOAA distributed more than 182,000 NOAA Weather Radio-All Hazards to preschools, Head Start programs, K-12 nonpublic schools, nonpublic school central offices, school district offices, and post-secondary schools across the nation. In two earlier phases, the federal government distributed radios to all 97,000 K-12 public schools across the country. The radios are distributed by NOAA with funding from the Department of Homeland Security and assistance from the Departments of Education and Health and Human Services.

Commonly known as NOAA Weather Radio-All Hazards, these radios provide alerts and safety steps on a wide range of emergencies--from an approaching tornado, a telephone outage disrupting 9-1-1 emergency services, local roads overrun by flash floods, a derailed train posing a hazardous material threat or the urgent need to be on the lookout for an abducted child. The radios sound an alarm to alert school personnel about hazardous weather and other emergencies, even when other means of communication are disabled. The program also encourages school officials, emergency managers, human service providers and Citizen Corps Councils across the country to partner and align their efforts with local emergency plans to build overall community preparedness. By coordinating with their local emergency managers and Citizen Corps Council, schools also can obtain technical and other assistance to improve their school safety plans and other emergency preparedness efforts.

Climate Reference Station in Baker, Nevada

ADVANCED U.S. CLIMATE REFERENCE NETWORK

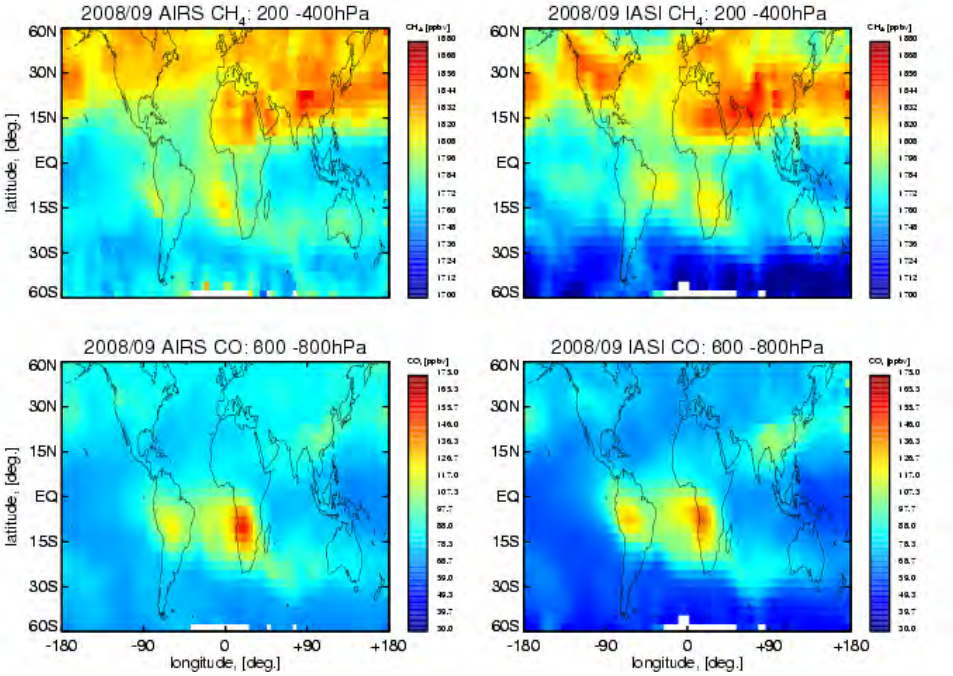
In fiscal year 2008 NOAA installed nine stations of the U.S. Climate Reference Network (USCRN), bringing the total number of stations to 114. These stations track temperature and precipitation trends across the Nation. The CRN is helping to pinpoint the shifts in America's changing, often unpredictable, climate. Each CRN station is crucial to obtaining accurate information on current and most likely future, conditions. Each CRN station logs real-time measurements of surface temperature, precipitation, wind speed, and solar radiation. NOAA's geostationary satellites relay the data from these ground-based stations to NOAA's National Climatic Data Center, which posts the observations online. NOAA employees oversaw a decade-long process of network design, site selection, installation, commissioning, operational monitoring and maintenance, and product development. Expanding this new, high-technology climate monitoring network directly supports NOAA's goal to understand climate variability and change to enhance society's ability to plan and respond.



Sea Surface Temperatures from NOAA's polar-orbiting and geostationary satellites

IMPLEMENTED POES-GOES BLENDED ANALYSIS PRODUCTS

NOAA's Center for Satellite Applications and Research (STAR) scientists and operations personnel, collaborating with domestic and international academic partners, developed and implemented a new class of sea surface temperature (SST) analysis. These new operational ocean remote sensing products blend SST measurements from NOAA's polar-orbiting and geostationary satellites and are available via NOAA CoastWatch. Under development for a number of years, these new products bring improved geographic measurements of the world oceans and better temporal coverage. Better SST measurements throughout the global ocean will improve numerical weather predictions, marine transportation information, and ecosystem management efforts, including coral reef monitoring.



First Operational Greenhouse Gas Products from IASI (right) compared to products from NASA's Atmospheric Infrared Sounder (AIRS, left)

DEVELOPED FIRST OPERATIONAL SATELLITE GREENHOUSE GAS PRODUCTS

NOAA's Center for Satellite Applications and Research (STAR) developed the first operational greenhouse gas products. These products, which became operational in August 2008, are derived from data taken by the Infrared Atmospheric Sounding Interferometer (IASI) aboard the European Metop-A satellite. With this information NOAA will be able to provide accurate mid-troposphere greenhouse gas concentrations well into the next decade and beyond. Greenhouse gasses are essential to maintaining the temperature of the Earth and in excess can raise temperatures. Measurements include carbon dioxide (CO_2), carbon monoxide (CO), and methane (CH_4). This new operational product responds to the Energy Policy Act of 2005. Increasing atmospheric concentrations of heat-trapping greenhouse gases, leads to increasing severe weather conditions, such as droughts and intense hurricanes. Information on the seasonal and geographic distribution of greenhouse gases will provide scientists, decision makers, and the public critical data on the sources of these gasses and how best to mitigate the risks.

Emergency Position Indicating Radio Beacons (EPIRBS) and Personal Locator Beacons (PLBs), tracking transmitters which aid in the detection and location of boats, aircraft, and people in distress, interface with COSPAS-SARSAT

COSPAS-SARSAT ASSISTED IN RESCUING 308 PEOPLE

In fiscal year (FY) 2008, the international Search and Rescue Satellite-Aided Tracking (SARSAT) System assisted in the rescue of 308 people throughout the United States and its surrounding waters. This high-tech system uses a network of international satellites, including NOAA's geostationary and polar-orbiting satellites, and ground stations to quickly detect and locate distress signals from emergency beacons onboard boats and planes and from hand-held personal locator beacons. NOAA also reached a milestone in 2008 with the 200,000th emergency beacon registered in the National 406 megahertz (MHz) Beacon Registration Database. The 406 MHz Beacon Registration Database allows users to register their beacons with contact information and a description of the vehicle, if applicable. The Search and Rescue (SAR) authorities use this information to expedite rescues as well as cancel false alerts, both of which make the system more efficient. Now in its 27th year, COSPAS-SARSAT has been credited with supporting more than 24,000 rescues worldwide, including 6,045 in the United States and its surrounding waters. In addition, signals from the 406 MHz beacons can be detected instantly, are more accurate, and offer global coverage.

An air gap (bridge clearance) sensor, an integral part of PORTS®, installed on the Gerald Desmond Bridge, in Long Beach, California, helps ships determine proper clearance underneath the bridge

EXPANDING THE REACH OF PORTS®

The Physical Oceanographic Real-Time System® (PORTS®) provides economic and safety benefits by supplying mariners with real-time data that can reduce the risk of vessel groundings and increase the amount of cargo moved through a port. In 2008, the National Ocean Service (NOS) installed four new PORTS® in Pascagoula, Mississippi; Gulfport, Mississippi; Sabine-Neches, Texas; and Cherry Point, Oregon for a total of 18 systems nationwide. The data are available online at http://tidesandcurrents.noaa.gov/ports.html.

NOS also released three new products using the PORTS® data, including a web site that provides a synopsis of the general conditions of an estuary, port, or harbor in real time; a web site that allows users to customize their PORTS® displays to include plots from any station and data type; and an application that allows PORTS® users with Internet access on their mobile phones to view data products directly on their personal devices.

NOAA divers work to free an endangered monk seal that is entangled in marine debris; fishing nets that have been lost or discarded

EFFORTS TO COMBAT MARINE DEBRIS

The NOAA Marine Debris Program (MDP) works closely with its partners to identify, reduce, and prevent debris in the marine environment. In 2008, MDP held its first Information Forum to increase information exchange and removal efforts. Data from recent efforts indicates the removal of more than 660 tons of derelict fishing net from reefs and shorelines in the Papahānaumokuākea Marine National Monument (1996-2008) and over 32 tons of derelict fishing net and used monofilament line have been used to create electricity through the Honolulu Derelict Net Recycling Program and port reception bin (2006-2008). Results from a three-year survey showed that densities of ghost crab traps in Chesapeake Bay range from 10-690 traps per square kilometer and approximately 400,000 lost crab traps are located in the Maryland portion of Chesapeake Bay alone.

Also, in 2008, MDP furthered partnerships with the National Fish and Wildlife Foundation and Covanta Energy Corporation to reduce the amount of unused fishing gear in the community and marine environment. The Fishing for Energy Project provides a place for a fishing community to dispose of, at no cost, old or derelict fishing gear recovered while at sea. New Bedford, Massachusetts, was the first port on the Eastern Seaboard to launch the program, with four sites added and plans to expand to the entire East Coast.

MPAs act as safe havens for marine life

MPA CENTER PUBLISHES FRAMEWORK FOR THE NATIONAL SYSTEM OF MARINE PROTECTED AREAS OF THE UNITED STATES OF AMERICA

The Marine Protected Areas (MPA) Center published the final *Framework for the National System of Marine Protected Areas in the United States of America,* a blueprint for building the National System of MPAs. Created with input from governments and stakeholders, as well as the 30-member MPA Federal Advisory Committee, the Framework outlines collaborative, transparent processes for MPA programs at all levels of government to work together at regional, national and international levels to achieve common conservation objectives. The Framework outlines key components of the national systems, including: a set of overarching national system goals and priority conservation objectives; MPA eligibility criteria; a nomination process for existing MPAs to be included in the national system; and a science-based, public-process for identifying conservation gaps.

Chub mackerel loaded on a boat

SIGNIFICANT PROGRESS TOWARDS ELIMINATION OF OVERFISHING

In 2008, overfishing of three commercially valuable stocks ended: Petrale Sole, Bigeye Tuna – Atlantic, and Finetooth Shark – Atlantic. NOAA also made significant progress towards efforts to end overfishing of Gulf of Mexico red snapper and gray triggerfish. Amendment 30A to the Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico, published on July 3, 2008, sets management measures to constrain harvest to their respective catch levels and adds annual catch limits and accountability measures for each species. It also establishes a gray triggerfish rebuilding plan. In addition, NOAA took important steps to end overfishing of the bottomfish stock complex in the Main Hawaiian Islands. Amendment 14 of the Bottomfish and Seamount Groundfish Fishery Management Plan was finalized and approved, implementing regulations that included the establishment of permits and reporting for non-commercial fishermen, total annual catch management and annual closure and bag limits. Further progress on eliminating overfishing is anticipated from the implementation of annual catch limits (ACL) for all stocks per the provisions of the Magnuson-Stevens Reauthorization Act. The proposed revisions to the guidelines for National Standard 1 (NS1) of the Magnuson-Stevens Fishery Conservation and Management Act, which will guide the establishment of ACLs, were published on June 9, 2008, with a final ruling expected sometime in 2009.

North Atlantic Right Whale

KEY ACTIONS TAKEN TO PROTECT LARGE WHALES

In October 2008, NMFS published a final rule that would limit ship speed during specific times and areas along the east coast where relatively high right whale and ship densities overlap near a number of ports, at calving/nursery areas in waters off Georgia and Florida, and New England. Evidence indicates that the likelihood of death and serious injury to large whales struck by ships is related to ship speed. NOAA also developed two proposals for submission to the International Maritime Organization (IMO) to reduce the risk of ship strikes to North Atlantic right whales. One would amend the north-south leg of the IMO-adopted traffic separation scheme in the approach to Boston, while a second would establish a seasonal *Area to Be Avoided* in the Great South Channel. The two draft proposals were approved by the IMO Subcommittee on Safety of Navigation in July 2008.

NOAA has also taken action to protect blue whales on the west coast. After a season in which three blue whales washed ashore near Santa Barbara, California due to injuries related to vessel strikes—only five confirmed deaths from ship strikes occurred off the entire California coast from 1980 to 2007—NOAA worked with the U.S. Coast Guard and the California Department of Fish and Game to mitigate ship impact on the whales. Flights over Santa Barbara Channel located where blue whales were feeding. The whales' positions were plotted and sent to the Port of Los Angeles and relayed to all commercial vessel traffic with a request to reduce speed to ten knots when in the area. As a result, there were no other known whale deaths from ship strikes after NOAA's response.

Removal of Smelt Hill dam under Open Rivers Initiative

NOAA RESTORES AND OPENS ACCESS TO VITAL FISH HABITAT

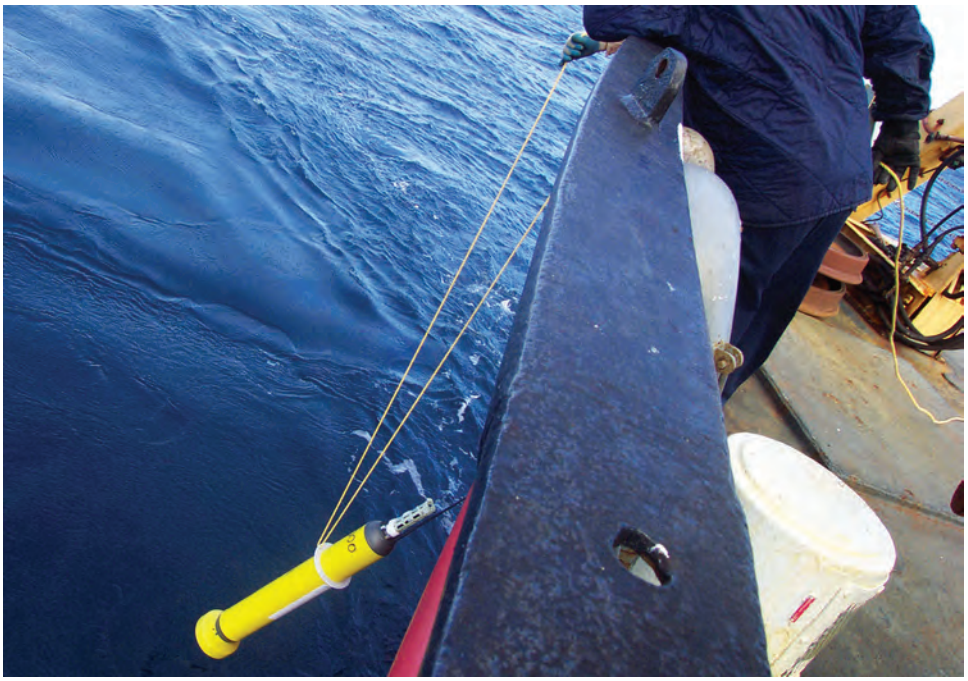
In 2008, NOAA restored, improved and protected 11,254 habitat acres and opened 623 stream miles for migrating fish. The restoration work was carried out through programs such as large-scale, regional restoration projects in Louisiana conducted under the Coastal Wetlands Planning, Protection, and Restoration Act; the Community-based Restoration Program, a novel, grass-roots approach to restoration designed to actively engage communities in on-the-ground restoration of local habitats; and the Damage Assessment, Remediation and Restoration Program, which helps assess damage to habitat after disasters and gives recommendations and provides necessary restoration and compensation. NOAA's habitat restoration, protection and improvement efforts improve water quality and quantity and increase "green armor" in U.S. coastal areas, creating strong, natural coastlines which serve as effective buffers against storm damage. NOAA programs including the Open Rivers Initiative and Hydropower Program open freshwater rivers and streams to migrating fish, allowing them to spawn in healthier habitats, which enhances the overall health of the river systems and improves the local economy.

NOAA's Open Rivers Initiative celebrated an important milestone in July 2008 when NOAA completed the first phase of a two-phase dam removal project to open access to salmon habitat on the main stem of the Rogue River in Jackson County, Oregon. NOAA and its partners removed Gold Hill Dam, which was no longer in use and had become a safety and maintenance concern. In the second phase, the nearby Savage Rapids Dam will be removed in 2009, opening access to 15 miles of high-quality spawning and rearing habitat for salmon. NOAA is also studying the feasibility of removing Gold Ray Dam, located two miles upstream of Gold Hill Dam, and is optimistic that it will be approved. Removal of Gold Ray Dam would provide access to over 300 miles of additional main stem and tributary salmon habitat.

NOAA Ship, *Okeanos Explorer*

NEW NOAA SHIP WILL CHANGE HOW WE EXPLORE THE OCEAN

NOAA ship *Okeanos Explorer,* "America's Ship for Ocean Exploration," was commissioned on August 13, 2008, setting it on a course as the only U.S. ship assigned to systematically explore our largely unknown ocean for the purpose of discovery and the advancement of knowledge. Unlike many other NOAA ocean expeditions, most of the scientists will remain ashore. Via telepresence, live images from the seafloor and other science data will flow over satellite and high-speed Internet pathways to scientists standing watch in any of the five land-based Exploration Command Centers. If a discovery is made at sea, those scientists will add their expertise to missions regardless of the ship's location. The ship will also stream live seafloor images and interviews with scientists over standard Internet connections in order to bring the excitement of ocean exploration and discoveries into classrooms, newsrooms, and living rooms, helping to raise ocean literacy among stakeholders, and increasing their ability to make informed decisions about important ocean issues.



Deployment of Argo_3000 Apex float 3277 WMO# 4901083 by Fisheries and Oceans Canada (Canadian Coast Guard) Seaman Chad Clayton
Photo: Leading Seaman Gary Stevens

NOAA DEPLOYS ITS 3000TH ARGO BUOY

NOAA researchers, including those at NOAA's Joint Institute for Marine Observations (JIMO), met the goal of deploying and maintaining 3,000 Argo floats in active service. The Argo array of profiling floats provides essential broad-scale, basin-wide monitoring of the upper ocean heat content. The heat content of the upper 2,000 meters of the world's oceans, and the transfer of that heat to and from the atmosphere, are variables central in understanding the climate system. Global sea level change is directly related to the ocean's heat content – as the ocean's temperature rises the water expands and thus sea level rises. The Argo array provides measurements needed to: 1) document heat uptake, transport, and release by the ocean; 2) document global sea level change; and 3) document the air-sea exchange of heat and water and the ocean's overturning circulation. While prior oceanic data collection relied heavily upon research vessels with limited timetables and ranges, the Argo network has made it possible for scientists to gather real-time, evolving data around the clock and around the world. The Argo float network provides an average coverage of one sensor for every three degrees of latitude and longitude. Such coverage is necessary to understand the complex interplay between the components of the world's air-sea-land climate system. Some climate scientists have posited that the oceans have absorbed more than 80 percent of the excess heat generated by global warming over the past 50 years, though they have lacked observational data needed to verify such claims. With the completion of the Argo network, scientists will now have the ability to test such hypotheses and substantially advance the study of oceans and their role in climate variability.

Pisces launch in December 2008

NOAA MODERNIZES ITS FLEET

Several major ship fleet recapitalization milestones were achieved in FY 2008. In August 2008, NOAA commissioned *Okeanos Explorer* in Seattle, Washington. The ship, a former Navy submarine surveillance ship that was converted to conduct research, is the only Federal ship dedicated to ocean exploration. It will be homeported in Rhode Island once its Pacific tour is completed. In September 2008, NOAA ship *Bell M. Shimada,* the fourth new fisheries survey vessel of the same class, was launched at the VT Halter Marine shipyard. The ship will be homeported on the West Coast. In December, NOAA launched *Pisces,* the third of four new fisheries survey vessels under construction at VT Halter Marine in Moss Point, Mississippi. The ship will be homeported in Pascagoula, Mississippi, when it becomes operational in 2009. NOAA's two oldest ships, *Rude* and *John N. Cobb,* were decommissioned in March and August 2008, respectively. A coastal mapping vessel currently under construction at VT Halter Marine will replace *Rude* in 2009; *Cobb's* mission will be continued by the NOAA fleet or charter vessels. In addition, two new 28-ft. survey launches acquired for NOAA ship *Rainier* improved overall survey efficiency and safety levels. The new vessels replaced launches that were more than 30 years old.

Aircraft Modernization

In 2008, NOAA completed structural modifications to house the tail Doppler radar (TDR) on the NOAA Gulfstream IV hurricane surveillance jet. All modifications were certified by the FAA as airworthy. Work continues on the TDR antenna design. Once it becomes operational in 2010, the G-IV's TDR will acquire meteorological data that will help forecasters more accurately predict the intensity of hurricanes.

The renowned NOAA WP-3D Orion, participates in a wide variety of national and international meteorological, oceanographic, and environmental research programs in addition to their widely known use in hurricane research and reconnaissance

NOAA AIRCRAFT FLY BUSY HURRICANE SEASON

The hurricane season kept NOAA hurricane aircraft extremely busy in support of the National Hurricane Center and Hurricane Research Division. In FY 2008 (which covers parts of two hurricane seasons) OMAO flight crews from the Aircraft Operations Center flew in six named storms: three tropical storms and three hurricanes. The Gulfstream-IV high-altitude surveillance jet flew 23 missions and 177 flight hours. The two WP-3D Orion research and reconnaissance turbo-props flew a total of 54 missions, with 383 flight hours. Once Hurricanes Gustav and Ike had passed after making landfall, the NOAA Citation jet and Jet-prop Commander flew 16 damage assessment flights and 47 flight hours in support of NOAA's Remote Sensing Division. More than 5500 photographs of the hardest hit areas were taken for Federal and local managers. A NOAA WP-3D conducted a damage assessment flight after Ike to compare hurricane forecasts with actual damage.

NOAA GPRA PERFORMANCE RESULTS

NOAA's mission goals in ecosystems, climate, weather and water, and commerce and transportation are integrated from a funding and organizational perspective, in order to maximize support for the Departmental performance goal: observe, protect, and manage the Earth's resources to promote environmental stewardship. NOAA currently has 30 Government Performance & Results Act (GPRA) measure targets. In FY 2008, NOAA achieved or exceeded targets on 26 of 31 measures, or 83 percent of the targets. The funding requested in this budget is essential for employing new and modified measures to better represent and assess NOAA's performance in achieving our mission.

In February 2009, the American Recovery and Reinvestment Act (ARRA) appropriated $830 million to NOAA, divided between ORF and PAC accounts. Programs in NOAA which receive funding from the ARRA will be required to establish and report on performance measures for success, as well as on schedule and cost progress. The additional funding will likely increase NOAA's ability to meet and exceed a number of our measures in FY09 and beyond in addition to making a positive investment in the economy.

Per 2008 GPRA measures, NOAA successfully installed at total of 114 stations which comprise the U.S. Climate Reference Network (USCRN) for the purpose of tracking national average changes in temperature and precipitation trends. Overfishing of three commercially valuable stocks ended in FY08: Petrale Sole, Bigeye Tuna, and Finetooth Shark. NOAA continues efforts to eliminate overfishing of stocks important to commercial, recreational, and subsistence fisheries. NOAA's Storm Prediction Center improved the preliminary average lead time for all verified tornado warnings, increasing safety and protecting lives and property.

NOAA's GPRA goals are focused on the results of key programs and services, support decision-making and congressional oversight, and are designed to measure and improve the performance of NOAA in meeting its mission. GPRA is unique in its requirement that agency "results" be integrated into the budgetary decision-making process. NOAA is continuously striving to improve its measures to better the service it provides to the American public.

For more information on NOAA's FY 2008 performance, please refer to the Department of Commerce FY 2008 Performance and Accountability Report (PAR), located at: http://www.osec.doc.gov/bmi/budget/FY08PAR.htm. Some of the actuals reported here are slightly different from what was reported in the FY 2008 PAR, as only estimates were available at the time.

NOAA PERFORMANCE SUMMARY FOR FY2008

GOAL	MEASURE	FY2008 TARGET	FY2008 ACTUAL	MET/ UNMET
WEATHER AND WATER	Lead Time (Minutes), Accuracy (%), and False Alarm Rate (FAR) (%) for Severe Weather Warnings for Tornadoes (storm based)	Lead Time: 11 Accuracy: 67% FAR: 74%	14 72% 75%	
	Lead Time (Min) and Accuracy (%) for Severe Weather Warnings for Flash Floods	Lead Time: 48 Accuracy: 90%	77 91%	
	Hurricane Forecast Track Error, 48 Hour (Nautical Miles)	110	86	
	Hurricane forecast intensity error (48 hour) (difference in knots)	14	14	
	Accuracy (%) (Threat Score) of Day 1 Precipitation Forecasts	29%	33%	
	Lead Time (Hours) and Accuracy (%) for Winter Storm Warnings	Lead Time: 15 Accuracy: 90 %	17 89%	
	Cumulative Percentage of U.S. Shoreline and Inland Areas that Have Improved Ability to Reduce Coastal Hazard Impacts	32%	32%	
CLIMATE	U.S. Temperature Forecasts (Cumulative Skill Score)	19	26	
	Reduce the Uncertainty in the Magnitude of the North American (NA) Carbon Uptake	0.35 GtC/yr	0.4 GtC/yr	
	Reduce the Uncertainty in Model Simulations of the Influence of Aerosols on Climate	15% Improvement	15% Improvement	
	Determine the National Explained Variance (%) for Temperature and Precipitation for the Contiguous United States Using USCRN Stations	Captured 96.0% - Annual National Temperature Trend and 95.0% - Annual National Precipitation Trend	Temp – 98.0% Precip – 95.1%	
	Reduce the Error in Global Measurement of Sea Surface Temperature	0.50 C	0.50 C	
	Improve Society's Ability to Plan and Respond to Climate Variability and Change Using NOAA Climate Products and Information	35 risk assessments / evaluations	37assessments / evaluations	

Key To Color Coding: Exceeded Target | Met Target | Slightly Below Target | Did Not Meet Target

NOAA PERFORMANCE SUMMARY FOR FY2008

GOAL	MEASURE	FY2008 TARGET	FY2008 ACTUAL	MET/ UNMET
ECOSYSTEMS	Fish Stock Sustainability Index (FSSI)	530.5	535	
	Percentage of Living Marine Resources (LMR) with Adequate Population Assessments and Forecasts	41.1%	40.2%	
	Number of Protected Species Designated as Threatened, Endangered or Depleted with Stable or Increasing Population Levels	22	24	
	Number of Habitat Acres Restored (Annual/ Cumulative)	9,000 / 47,488	11,254 / 49,472	
	Annual Number of Coastal, Marine, and Great Lakes Ecological Characterizations that Meet Management Needs	45	45	
	Cumulative Number of Coastal, Marine, and Great Lakes Issue-Based Forecasting Capabilities Developed and Used for Management	38	38	
	Percentage of Tools, Technologies, and Information Services That are Used by NOAA Partners/Customers to Improve Ecosystem-based Management	86%	86%	
	Annual Number of Coastal, Marine, and Great Lakes Habitat Acres Acquired or Designated for Long-term Protection (Annual)	2,000	6,219	
COMMERCE & TRANSPORTATION	Reduce the Hydrographic Survey Backlog within Navigationally Significant Areas (square nautical miles surveyed per year)	2,500	2,127	
	Percentage of U.S. Counties Rated as Enabled or Substantially Enabled with Accurate Positioning Capacity	60.0%	60.2%	
	Accuracy (%) and FAR (%) of Aviation Forecasts for Ceiling and Visibility (3 miles / 1000 feet)	Accuracy: 63% FAR: 44%	62% 39%	
	Accuracy (%) of Forecast for Wind Speed and Wave Height	Wind Speed: 68% Wave Height: 73%	72% 77%	

Key To Color Coding: Exceeded Target | Met Target | Slightly Below Target | Did Not Meet Target